

ABSTRACT

New lithographic compositions (e.g., for use as middle layers in trilayer processes) are provided. In one embodiment, the compositions comprise an organo-silicon polymer dispersed or dissolved in a solvent system, and preferably a crosslinking agent and a catalyst. In another embodiment, the organo-silicon polymer is replaced with a polyhedral oligomeric silsesquioxane-containing polymer and/or a polyhedral oligomeric silsesquioxane. In either embodiment, the polymer and/or compound should also include -OH groups for proper cross-linking of the composition. When used as middle layers, these compositions can be applied as very thin films with a very thin layer of photoresist being applied to the top of the middle layer. Thus, the underlying bottom anti-reflective coating is still protected even though the overall stack (i.e., anti-reflective coating plus middle layer plus photoresist) is still thin compared to prior art stacks.